

## BLADDER DYSFUNCTION IN MEN WITH LOWER URINARY TRACT SYMPTOMS REFRACTORY TO ALPHA-BLOCKER THERAPY – A VIDEOURODYNAMIC ANALYSIS AND THE RELATIONSHIP WITH AGE AND PROSTATIC VOLUME

### Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) include storage symptoms, voiding symptoms, post-micturition symptom and pain. LUTS is highly prevalent in men and women and increases with age. Recently, bladder dysfunction has been noted to have great contribution to the pathophysiology of non-obstructive male LUTS. This study retrospectively analysed the bladder dysfunction in male LUTS based on the results of videourodynamic study (VUDS) in a large cohort of men with LUTS.

### Study design, materials and methods

This study retrospectively included male patients aged greater than 40 with LUTS and an IPSS of equal or greater than 8 from 2000 to 2014. Most of the patients received initial treatment with alpha-blocker but was not satisfactory. A VUDS was scheduled to investigate the underlying bladder or bladder outlet dysfunction. VUDS was performed according to the recommendations of the International Continence Society. Patients were categorized as bladder dysfunction and bladder outlet dysfunction. Patients with bladder dysfunction were further divided into subgroups of hypersensitive bladder (HSB), detrusor overactivity (DO), DO with inadequate contractility (DHIC), and detrusor underactivity (DU). Patients with bladder outlet dysfunction were divided into bladder outlet obstruction (BOO) without DO, BOO with DO, and poor relaxation of external sphincter (PRES) subgroups according to the characteristic findings. The age, prostatic measurements, and VUDS findings were compared among patients with different subgroups.

### Results

A total of 2991 men were included in this retrospective analysis. Among them, 919 (30.7%) patients were classified as having bladder dysfunction and 1941 (64.9%) were bladder outlet dysfunction; and 131 (4.4%) were normal (Table 1). Among 919 patients with bladder dysfunction DO was noted in 55.2%, DHIC in 17.3%, HSB in 10.8% and DU in 16.6%. Among 1454 patients with BOO, 1011 (69.5%) had DO. Among patients with DO, 66.6% of them had BOO, while among patients with BOO, 69.5% of them had DO.

Table 1. Videourodynamic classification of pathophysiology of male LUTS

Normal bladder and outlet function	131 (4.4%)
Bladder dysfunction	919 (30.7%)
Detrusor underactivity	153 (5.1%)
Detrusor hyperactivity and inadequate contractility	159 (5.3%)
Detrusor overactivity (without bladder outlet obstruction)	508 (17.0%)
Hypersensitive bladder	99 (3.3%)
Bladder outlet dysfunction	1941 (64.9%)
Bladder outlet obstruction with detrusor overactivity	1011 (33.8%)
Bladder outlet obstruction without detrusor overactivity	443 (14.8%)
Poor relaxation of urethral sphincter	487 (16.3%)

### Interpretation of results

Fig. 1 shows the distribution of age in all subgroups. Fig. 2 shows the distribution of TPV in all subgroups. In patients with HSB, PRES and normal, TPV was small than 30 mL in >60%, and smaller than 40 mL in >80% of patients. In patients with DU, DHIC, DO, and BOO without DO, TPV was small than 40 mL in >60% of patients. In contrast, patients with BOO+DO the TPV was larger than 60 mL in 31.4%, and larger than 40 mL in 59.4% of patients. If we combined patients with BOO+DO and BOO without DO, the percentage of patients with BOO was 40.6%, 50.2%, 66.9% and 79.8% in the overall patients with LUTS and TPV<30 mL, 30-40 mL, 41-60 mL, and >60 mL, respectively.

### Concluding message

LUTS in men can be caused by either bladder dysfunction or bladder outlet dysfunctions occurring alone or in combination. This study revealed that 30% of male LUTS is due to bladder dysfunction. Patients with DO, DHIC and DU were older and having small TPV, whereas those with HSB were younger and having small TPV.

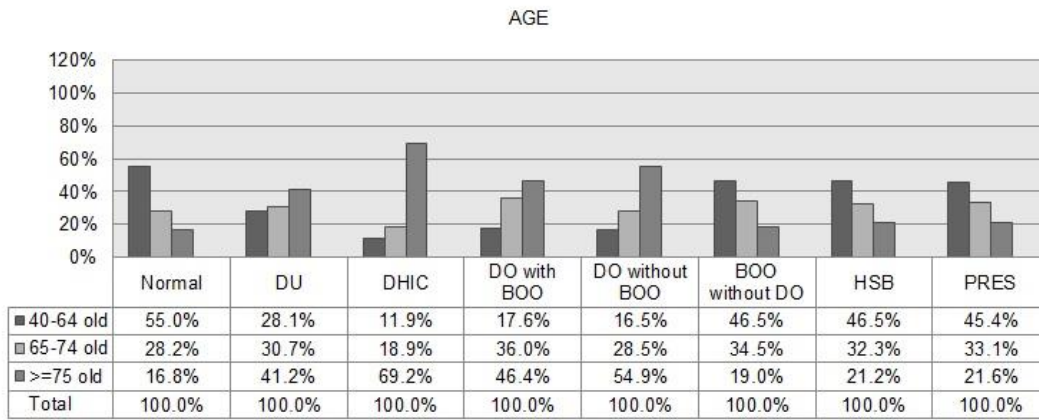


Fig. 1. The age distribution in the subgroups of male LUTS.

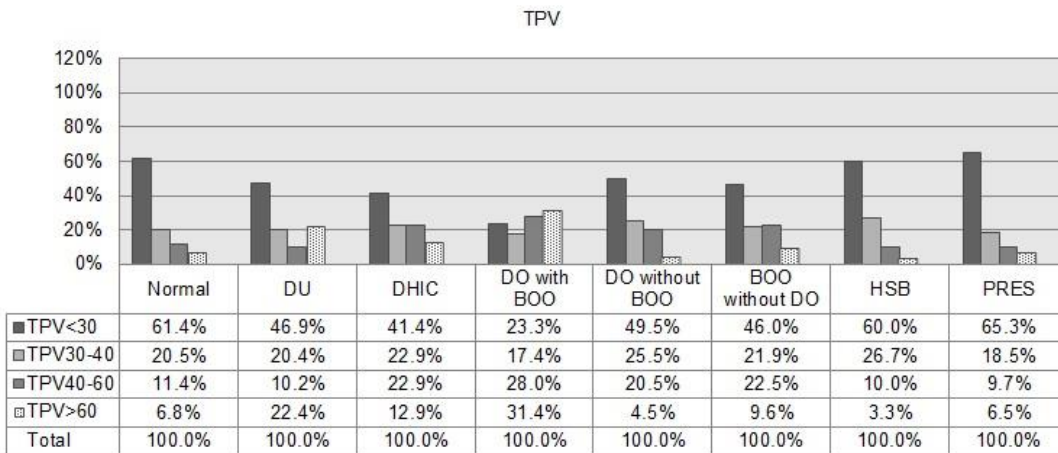


Fig. 2. The total prostatic volume in the subgroups of male LUTS.

**Disclosures**

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